

2024

heat  *bird*

| HEAT

| CONTROL

| DESIGN

| PROCESS



Awards & Recognitions



About Our Company

Who we are

What do we do

Mission

Vision

Who we are

Since More than 3 decades we are in Heating Business. You name it any industry or domain it needs heating applications heating systems to produce their Products. Heating is not a product it's a PROCESS.

Our Group "Heatbird" Foundation was made by Mr. Jagdish Bhavsar and he has started this business since 1986 with Proprietorship Company named Ambica Enterprises in Garage and we reached here so far.

What do we do?

HEATBIRD HEATINGSOLUTIONS PVT. LTD. are engaged in manufacturing the top-quality heating products for both domestic and industrial applications A Certified Company having an ISO 9001:2015 – Quality Management System, ISO 14001:2015 – Our office and production facility have an area of around 3,000 sq.ft is situated in Mumbai & Vadodara together

We are headed by a team of experts who work towards good quality manufacturing standards in order to meet business and end user needs along with a firm focus on long term relationships, business to business and business to customer. The success of our company is attributed to its efficiency by having a workforce with devotion and sincerity to the organization who are technically sound professionals within-depth knowledge about the product process and embedded in our approach of working in partnership with our reputed customers

| Our Mission

We are on a mission to help Project Heads and CEOs of Turnkey Projects and EPC Companies To build heating systems and heating products that are process, quality and efficiency driven which aids in hassle free productivity for operation lines.



| Our Vision

To be known globally as a manufacturer of exemplary range of top-quality heating products for any kind of working medium suitable for domestic and industrial applications.



| Quality Policy

Quality is always at the top of our priority list. We therefore endeavor to products by implementing an up to date international manufacturing standards and by considering as well the commercial advantage of our valued customers



| Our Countrywide Clients



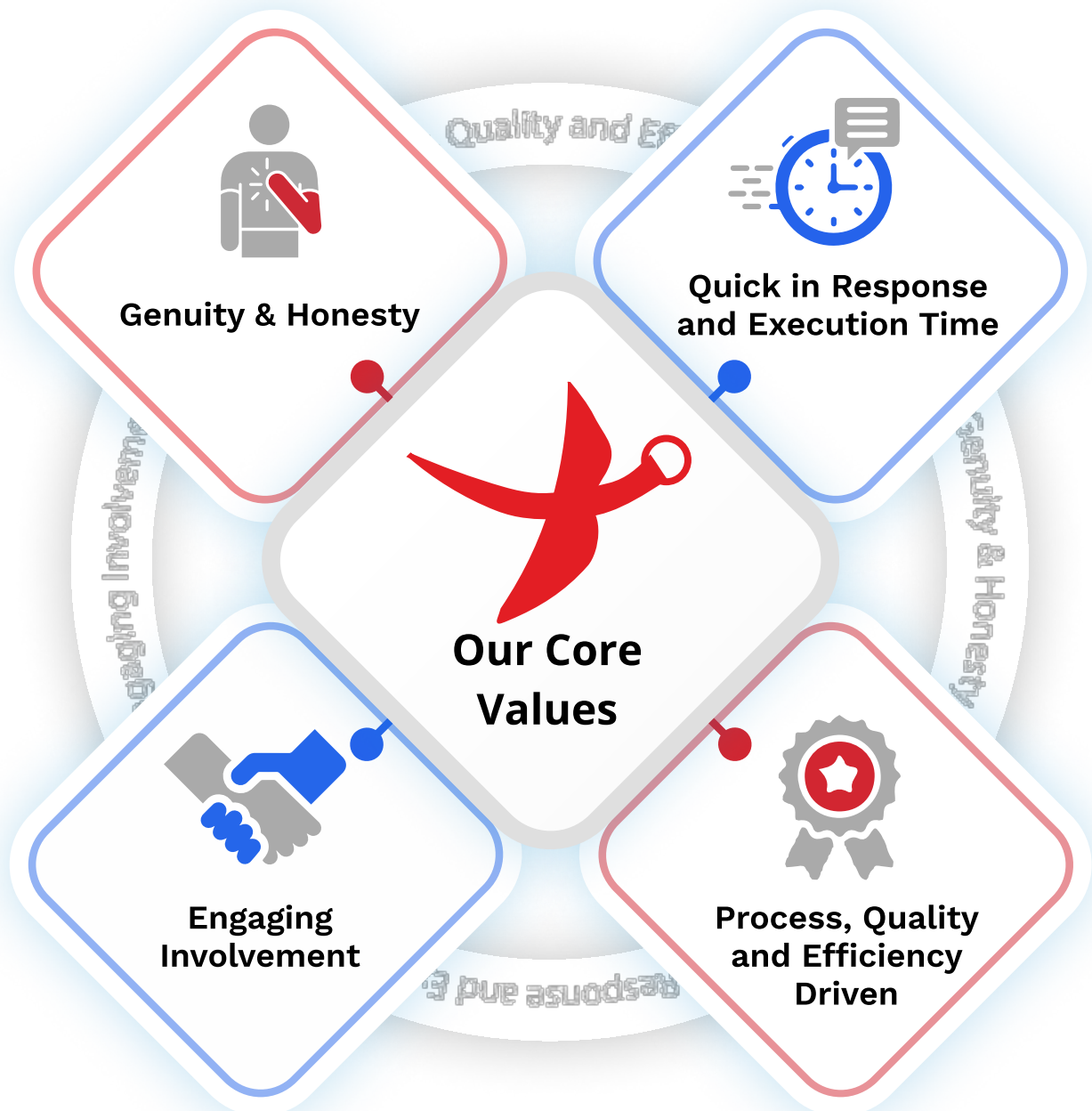
| Our Worldwide Clients



| Why HeatBird ?

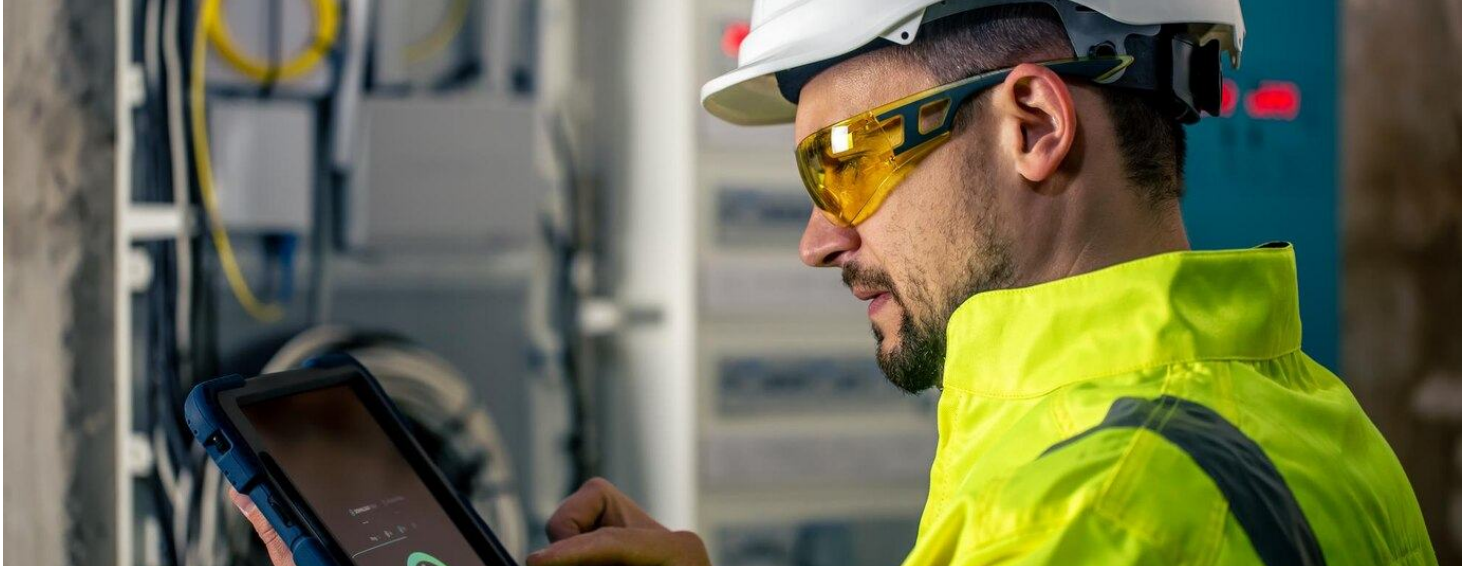
Our Heating solutions are all about attention to details, clarity of expectations and high Productive, that provides measurable outcomes which enables your Operation lines to reach its fullest potentials.

Unlike, most other heating companies who do 1 time sale we offer detailed specifications of materials, transparent and Genuine heating solutions at Fair Prices not cheap prices by working on 4Ds with your Production lines



| 4D's

Unlike, most other heating companies who do 1 time sale we offer detailed specifications of materials, transparent and Genuine heating solutions at Fair Prices not cheap prices by working on 4Ds with your Production lines



Diagnosis

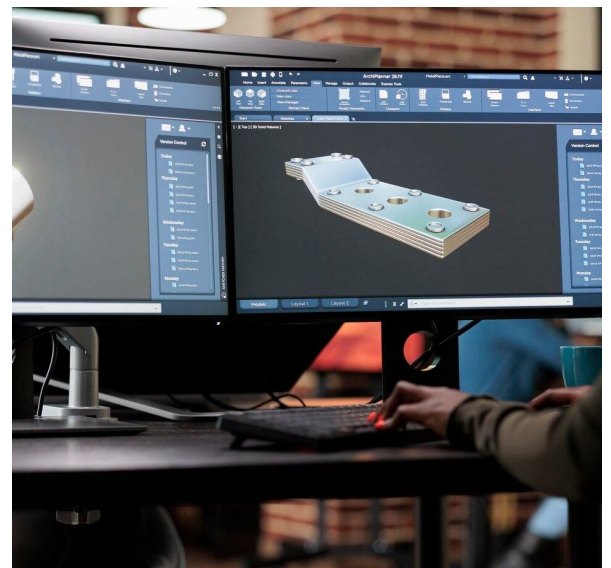
Business needs + Heating Requirements

We Diagnosis And Draft Heating Requirements that Business Needs to reach Operation lines to reach its fullest potentials.

Design

Engaging Involvement

Continuous Engaging Involvement to Design Your Heating Products, Heating Equipment and Heating Systems





Deliver

High Impactful Heating Solutions and Systems

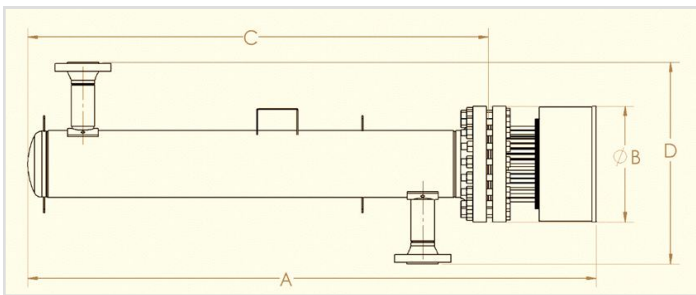
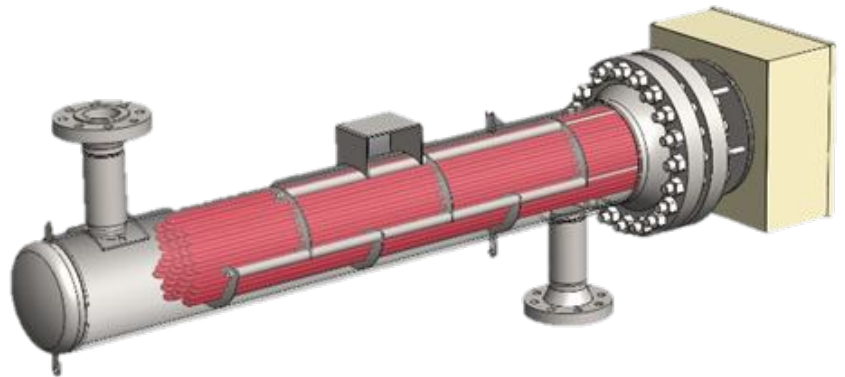
Process, Quality and Efficiency Driven High Impactful Heating Solutions and Systems



Development

Hand holding and Measurable Actionable Heating Solutions which ensures Growth In Productivity for your Operations or production lines

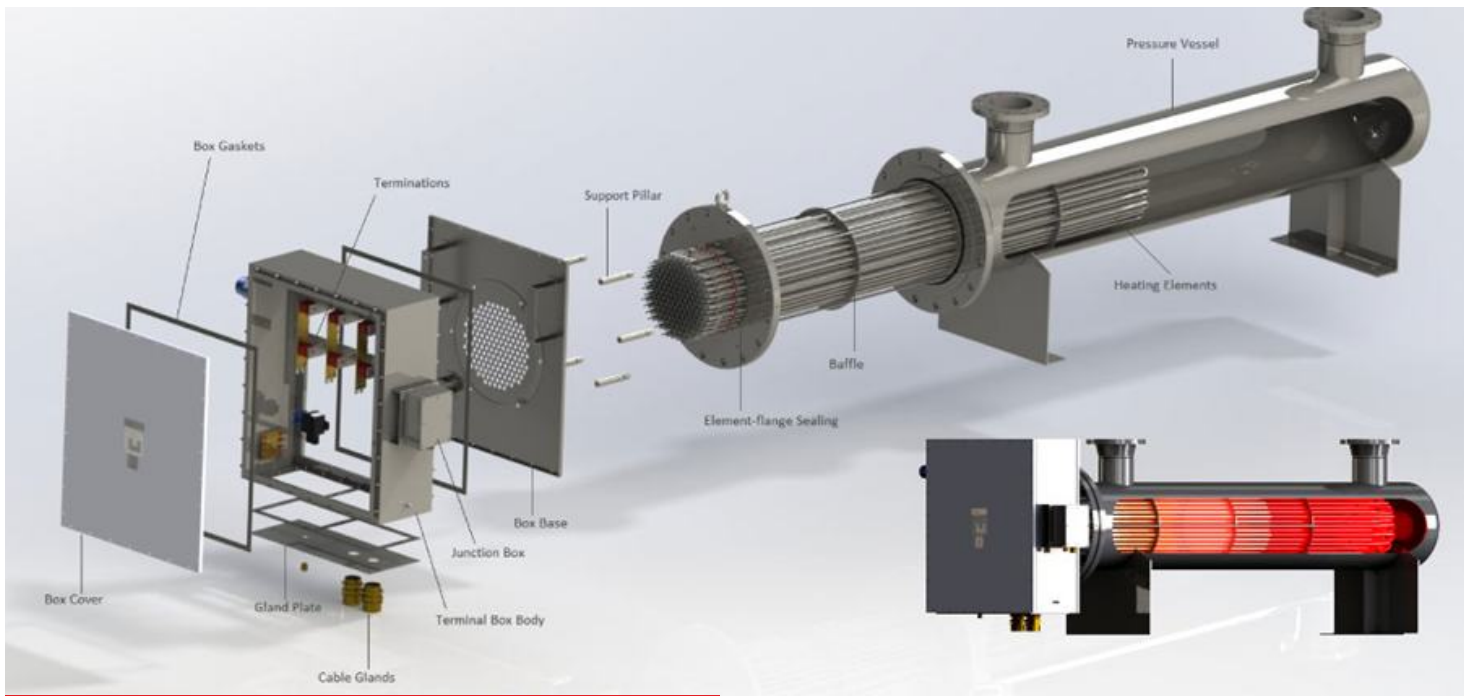
IN-LINE CIRCULATION HEATERS



Heatbird offers a unique ranged of in-line Circulation Heaters designed to withstand high pressure and high temperature for Chemical Process Plant, Food & Beverages and Hospital Industries. Generally, our non-storage calorifier offered with U-tube heat exchangers with working pressure up to 20 bars and temperature up to 350°C. National Circulation heaters are fitted with following components to complete the process.

Sr. No.	Power(kW)	Fluid Media	Size	Components	Temp.
1	15	Water, Thermic Fluid	2"	1,2,5,6	90-120°C
2	30	Water, Thermic Fluid	4"	1,2,3,5,6	90-120°C
3	45	Water, Thermic Fluid	6"	1,2,3,4,5,6 - OPTIONAL	90-150°C
4	60	Any fluid	6-8"	1,2,3,4,5,6 - OPTIONAL	90-350°C
5	90	Any fluid	10-12"	1,2,3,4,5,6 - OPTIONAL	90-350°C
6	120	Any fluid	12-14"	1,2,3,4,5,6	90-350°C
7	150	Any fluid	14-16"	1,2,3,4,5,6	90-350°C

Components Involved in In-line Heater Unit



1. Electric Immersion Heater

Bundle of Tubular heaters with baffles to heat up the fluid running within the shell to reach desire temperature. This unit is heart of the whole system. Each process happening around heater is crucial and important to keep process efficient and continuous.



Flange

The immersion heater flange act as a Connecting bridge between heating elements and shell that allows to be securely installed in to the vessel or tank.

The Points to be consider for selection flanges:

- Material of Flange
- Size & Ratings
- Mounting
- Brazing & Assembly
- SupportPillar
- Buffel

Heating Element.

Specification:

STANDARDVOLTAGE: 240 IN CASE OF 440 V PLEASE CONSULT

STANDARD DIAMETER: 6 mm, TO 30 MM OTHER THAN THAT PLEASE CONSULT

MAXIMUM TEMPERATURE: 700 DEGREE

SHEATH MATERIALS 304/316/310, Incoloy 800, Inconel 600, Titanium etc.

CONNECTION STUD WILL BE PROVIDED.

LEAKAGE CURRENT (COLD) : ≤ 0.5 Ma for 240 V

DIAMETER TOLERANCE: ± 0.02 TO 0.06

RESISTANCE TOLERANCE: $\pm 5\%$ TO 10%

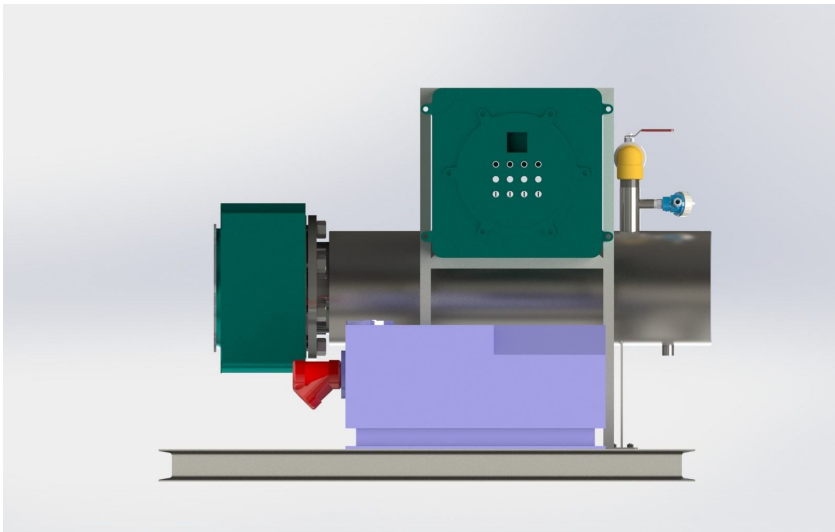
WATTAGE TOLERANCE: $\pm 5\%$ TO 10%

LENGTH TOLERANCE: $\pm 1\%$ MIN. 1 MM

1-Terminal Box

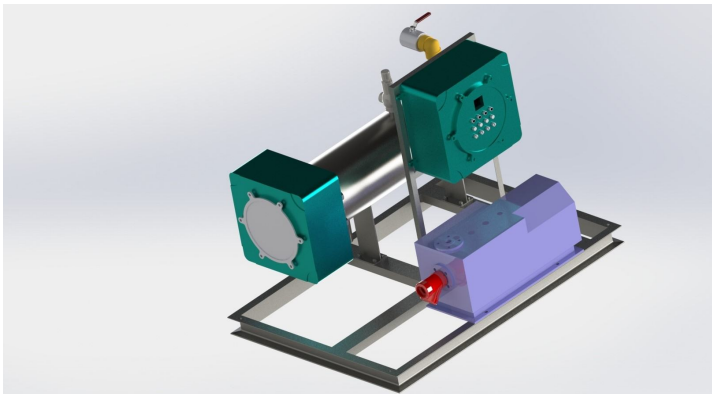
In a process heater, the terminal box acts as an enclosure for electrical connections and components related to the heating system. Below are the breakdown of its purpose and components:

Enclosure: The terminal box provides a protective enclosure for electrical connections, wiring, and components associated with the process heater. It helps to prevent exposure to dust, moisture, and other environmental factors that could potentially damage the terminals of the heating system.



- Electrical Connections:
- Safety Features:
- Termination Points:
- Accessibility:
- Compliance:

Overall, the terminal box plays a critical role in providing a safe and reliable electrical connection for the heating system of a process heater. It helps to protect electrical components from environmental damage, facilitates proper wiring and connections, and ensures compliance with safety standards and regulations.



Compliance: Terminal boxes must comply with relevant electrical safety standards and regulations to ensure the integrity of the electrical system and minimize the risk of hazards such as electrical shocks, short circuits, or fires.

Overall, the terminal box plays a critical role in providing a safe and reliable electrical connection for the heating system of a process heater. It helps to protect electrical components from environmental damage, facilitates proper wiring and connections, and ensures compliance with safety standards and



2. Fluid Circulation Shell

Shell handles circulation fluid and electrical heater enclosed within the shell. Shell handles extreme pressure from 1 – 50kg/cm² to accommodate fluid and temp. Rise of fluid. Fluid moves turbulently between the heater and shell. Inlet & Outlet nozzles are welded to the shell area and safety valves also attached to it to make the heating process run smoothly.

Here's a breakdown of the purpose and features of the fluidcirculation shell in a process heater:

Containment:

This containment helps prevent leaks and spills, maintaining the integrity of the heating process and minimizing the risk of environmental contamination

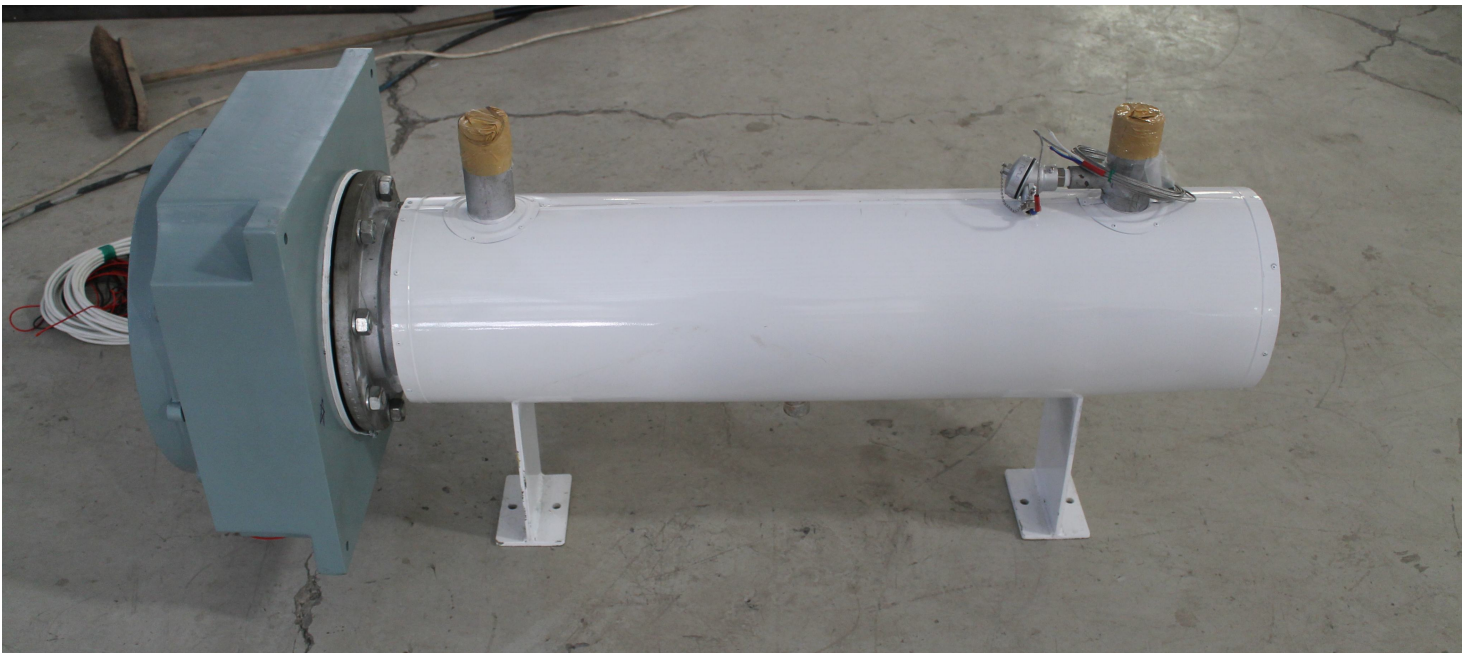


Flow Path:

Inside the circulation shell, channels or passages are designed to guide the flow of the process fluid through the heater.

Heat Transfer:

The fluid circulation shell is designed to optimize heat transfer Depending on the type of heater i.e. direct contact between the heating elements and the fluid (as in immersion heaters) or indirect heat transfer through a heat exchange surface (as in shell-and-tube heat exchangers or plate heat exchangers).



Temperature Control:

The circulation shell may incorporate features to control the temperature of the process fluid as it passes through the heater

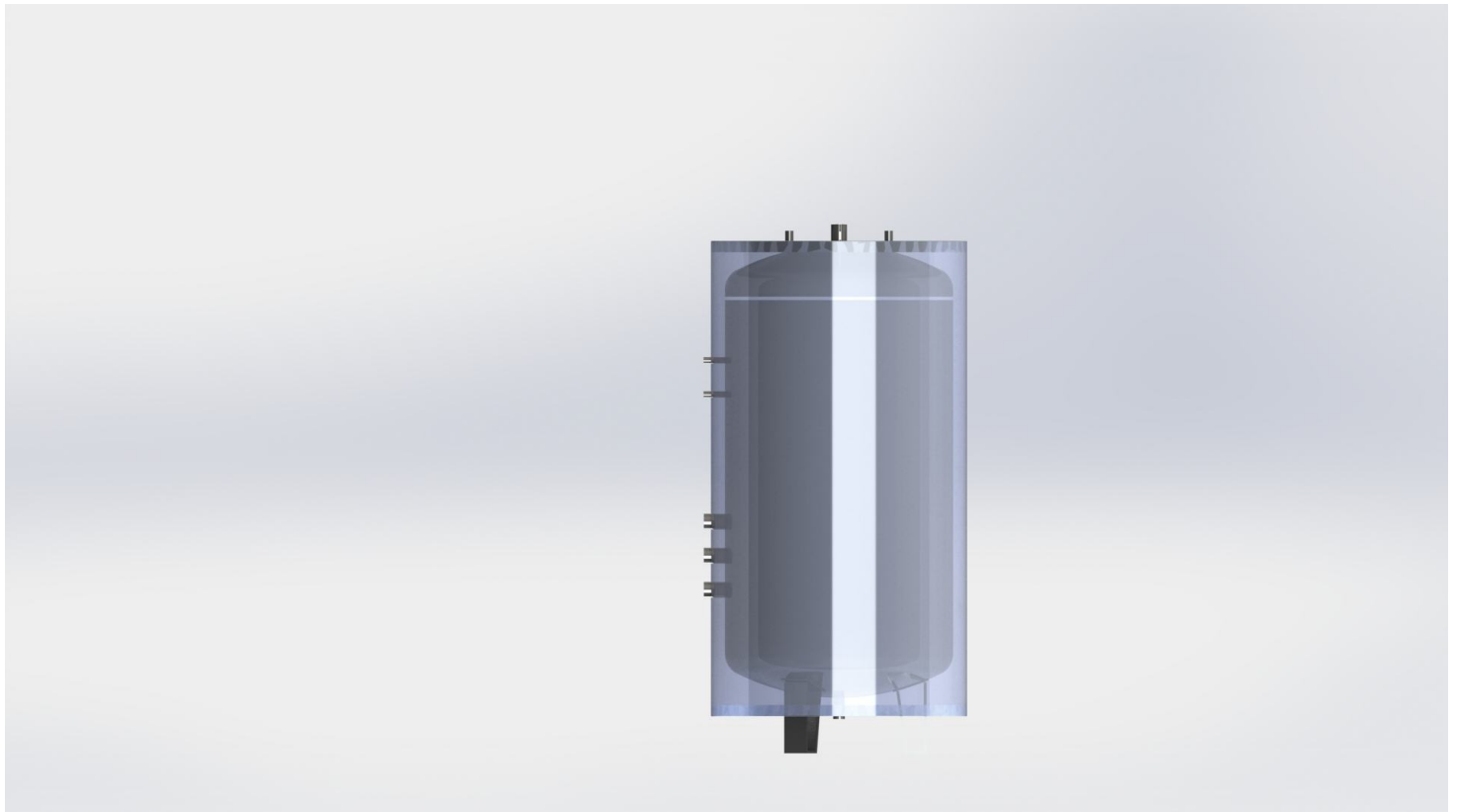
Materials and Construction:

The construction of the fluid circulation shell may be fabricated from materials such as carbon steel, stainless steel, or other corrosion-resistant alloys, depending on factors such as temperature, pressure, and the chemical composition of the fluid

Accessibility and Maintenance:

The fluid circulation shell should be designed to allow for easy access for inspection, cleaning, and maintenance activities.

Overall, the fluid circulation shell plays a critical role in facilitating the efficient and reliable heating of process fluids in a variety of industrial applications. Its design and construction are tailored to the specific requirements of the process heater, ensuring optimal performance and safety.





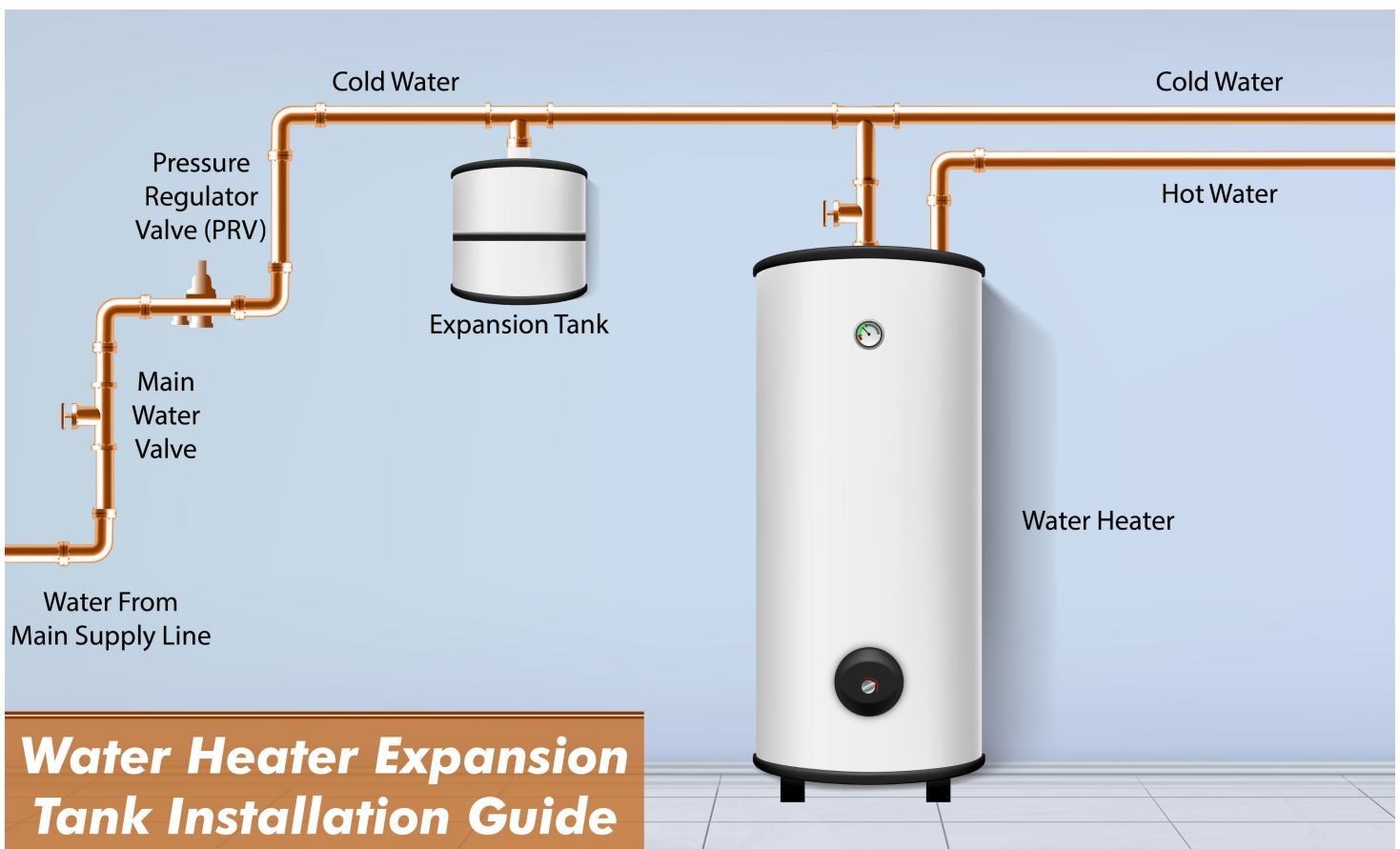
The fluid has to be circulated continuously through complete process equipment and sent to the targeted area where the actual usage of fluid happens. To make this process happen pump has to withstand the original fluid temp. Which is higher than normal in order to facilitate circulation.

3. Circulation Pump

Here are some key aspects of circulation pumps in process heaters:

- Function
- Control
- Types
- Efficiency and Energy Consumption

Overall, circulation pumps play a crucial role in process heaters by facilitating the movement of process fluids through the heating system, promoting efficient heat transfer, and maintaining uniform temperature distribution.



Water Heater Expansion Tank Installation Guide

4. Expansion Tank



In a process heater system, an expansion tank serves a vital role in managing the thermal expansion of the heating fluid. Here's a break down of its purpose and function:

Compensating for Thermal Expansion:

As the heating fluid within the system is heated, it undergoes thermal expansion, leading to an increase in volume.

Pressure Regulation:

The expansion tank acts as a pressure regulation device by providing a buffer space for the heating fluid to expand into as its temperature rises.

Preventing System Damage:

By accommodating the increased volume of the heating fluid due to thermal expansion, the expansion tank helps to protect the integrity of the process heater system

Maintaining System Efficiency:

: By ensuring proper pressure regulation and preventing damage to system components, the expansion tank helps to maintain the efficiency and reliability of the process heater system.

Types of Expansion Tanks:

Expansion tanks for process heater systems typically fall into two main categories: open expansion tanks and closed expansion tanks.

- Open Expansion Tanks:
- Closed Expansion Tanks:



Sizing and Installation:

Proper sizing and installation of the expansion tank are critical to its effectiveness in the process heater system

Overall, the expansion tank plays a crucial role in ensuring the safe and efficient operation of process heater systems by managing thermal expansion and maintaining proper pressure regulation within the system. Proper selection, sizing, and installation of the expansion tank are essential considerations in the design and maintenance of process heater systems.



5. Safety Valves

Safety valves are essential components in process heater systems designed to protect equipment and personnel from over pressure situations

Types of Safety Valves:

There are several types of safety valves commonly used in process heater applications

- Spring-Loaded Safety Valves
- Pilot-Operated Safety Valves
- Rupture Discs

Overall, safety valves are essential safety devices in process heater systems, providing critical protection against overpressure situations and helping to ensure the safe and reliable operation of the equipment.

Proper selection, installation, and maintenance of safety valves are essential aspects of process heater design and operation.

6-Control Panel

Step Controller

For high power range applications duct heaters are available with electronic step controller if required. They are used to stage multiple steps of electric or pneumatic control. Switching multiple stages with step controller ensures that the room set point should not take stress as load requirement changes.

SCR Controller

Heatbird also provides duct heaters along with SCR controls. One hundred percent solid state proportionating control is noiseless and does not have any mechanical device. SCR controlled duct heaters can be able to provide very fine and precise temperature environment which can be having highest reliability. Modulation from 0 to 100% can be achieved by time based proportional firing which can be varied in response to the various thermostat demands.

Voltage/Phase	Maximum (kW)
120/1	9
208/1	18
240/1	24
480/1	18
208/3	45
240/3	55
480/3	60

Panel Options



Insulated Control Panel:

Insulation is recommended between control panel and heaters for higher temperatures.

Insulation material will be installed between panel and hot surface area to prevent condensation on electrical components.

Bottom Control Panel:

Bottom control panel can be supplied when required for easy installation and maintenance.

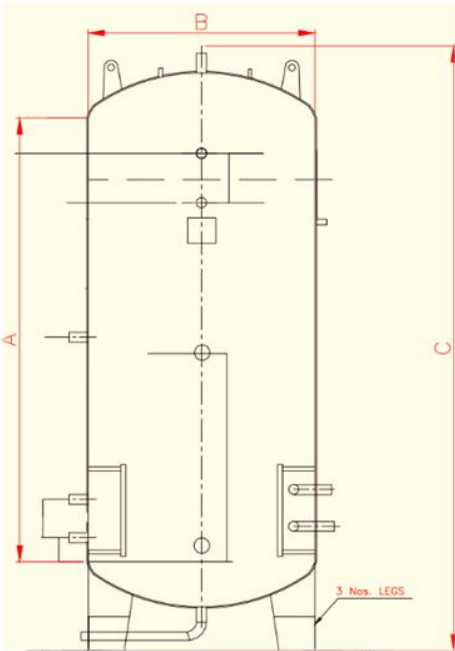


Remote Control Panel:

In some case it is advisable to install panel remotely from heating elements. It is also supplied as per requirement which enable to operate the heater from remote location like control room, etc.

CALORIFIERS-STORAGE TANK

Storage Calorifiers are manufactured in two categories such as Direct Heating which is equipped with Electric Immersion Heaters or Indirect Heating which is using Heat Exchanger Tubes (spiral tube hex or u-tube hex). Mainly applicable for Domestic Water Heating System



Model No.	Volume (litres)	Dimensions(mm)		
		Height(A)	Diameter(B)	Max. Height(C)
HBH-CL-EH-300	300	1100	600	1400
HBH-CL-EH-500	500	1330	700	1630
HBH-CL-EH-750	750	1533	800	1833
HBH-CL-EH-1000	1000	2030	800	2330
HBH-CL-EH-1500	1500	1985	1000	2285
HBH-CL-EH-2000	2000	1879	1200	2179
HBH-CL-EH-2500	2500	2321	1200	2621
HBH-CL-EH-3000	3000	2763	1200	3063
HBH-CL-EH-3500	3500	2582	1350	2882
HBH-CL-EH-4000	4000	2577	1450	2877
HBH-CL-EH-4500	4500	2879	1450	3179
HBH-CL-EH-5000	5000	2667	1600	2967
HBH-CL-EH-5500	5500	2916	1600	3216
HBH-CL-EH-6000	6000	2574	1800	2874
HBH-CL-EH-6500	6500	2770	1800	3070
HBH-CL-EH-7000	7000	2967	1800	3267



Components Involved in Calorifier Unit

- Tank Shell
- Tank Dish end
- Electric Heater /Heat Exchanger
- Gauges - Temp. Pressure/Level
- Safety valves & Vent
- Control equipment, Sensors & Panel
- Insulation type - Hot / Cold

1 Tank Shell

Enclosure:

The calorifier tank shell is typically constructed from materials such as carbon steel, stainless steel, or other corrosion-resistant alloys, depending on the specific application and operating conditions.

Insulation:

Insulation materials such as foam, fiberglass, or mineral wool are commonly used to reduce heat transfer through the tank shell and maintain the temperature of the stored hot water.



Structural Support:

The tank shell provides structural support for the internal components of the calorifier system, including heating elements, heat exchangers, pipes, and fittings. It provides structural support for the internal components of the calorifier system, including heating elements, heat exchangers, pipes, and fittings. It must be designed and constructed to withstand the weight of the internal components and the pressure of the hot water within the tank.

Access:

The calorifier tank shell may incorporate access ports, manholes, or inspection hatches to allow for easy access to the interior of the tank for inspection, cleaning, maintenance, and repair activities.



Safety Features:

Calorifier tank shells are designed with safety features to prevent leaks, ruptures, and other forms of damage that could compromise the integrity of the system or pose risks to personnel and property.

Compliance:

Calorifier tank shells must comply with relevant industry standards and regulations governing pressure vessels, water heaters, and other related equipment

2. Tank Dish end



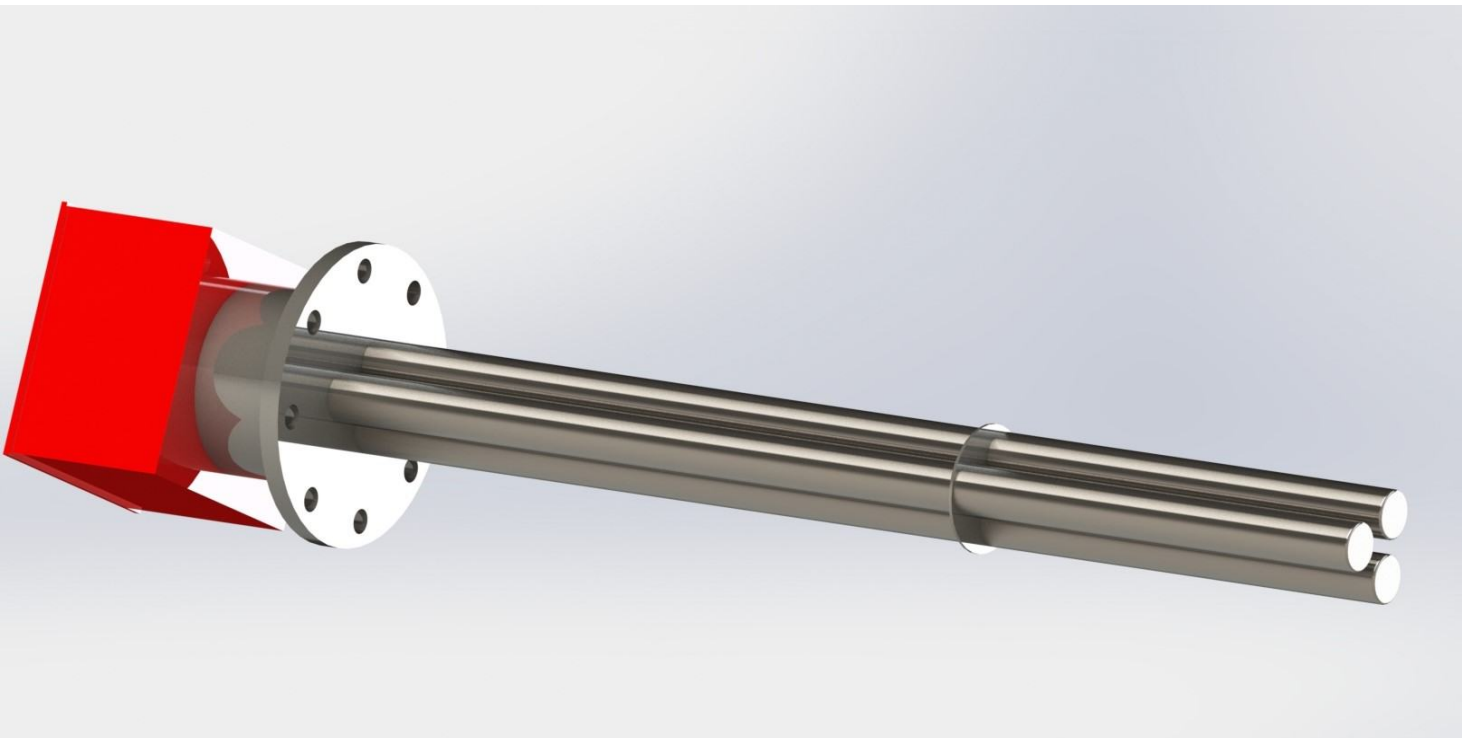


A tank dish end, also known as a tank head or tank cap, is a component used to close or seal the ends of cylindrical pressure vessels such as tanks, boilers, and reactors. These ends are curved in shape, resembling a portion of a sphere or ellipsoid, and are welded or bolted to the cylindrical body of the vessel. Tank dish ends serve several important functions in pressure vessel design and operation:

Tank dish ends come in various configurations, including hemispherical, ellipsoidal (also known as dished or dished-and-flanged), tori spherical (or flanged-and-dished), and conical. The choice of dish end configuration depends on factors such as the pressure rating, volume requirements, and design specifications of the pressure vessel.

3 Electric Heater / Heat Exchanger

In a calorifier tank, electric heaters and heat exchangers are two common methods used to heat the water or fluid stored within the tank. Let's break down each method:



1. Electric Heater:

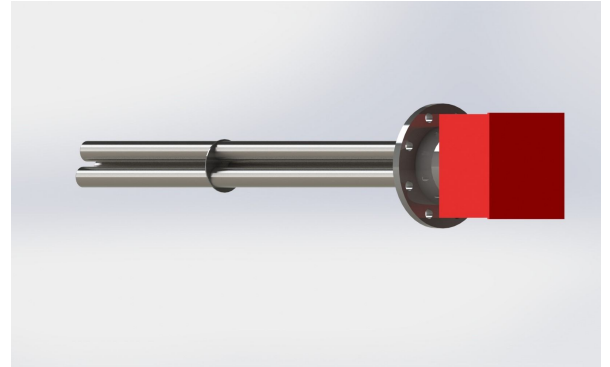
An electric heater in a calorifier tank typically consists of one or more heating elements immersed directly in the water or fluid. These heating elements are usually made of materials with high electrical resistance, such as nichrome or stainless steel, which generate heat when an electric current passes through them.



Electric heaters offer precise temperature control and rapid heating, making them suitable for applications where quick hot water supply is required.

They are commonly used in smaller-scale or residential calorifier systems where access to electricity is readily available and space for equipment is limited.

Electric heaters may require additional safety features such as thermostat controls, overheat protection, and insulation to prevent overheating and ensure safe operation



2. Heat Exchanger:

A heat exchanger in a calorifier tank utilizes an external heat source, such as a boiler, steam, or hot water loop, to transfer thermal energy to the water or fluid within the tank.

The heat exchanger consists of a series of tubes or plates through which the heating medium flows, transferring heat to the water or fluid in the tank through conduction.

Heat exchangers offer efficient heat transfer and are suitable for applications where a continuous supply of hot water is required over an extended period.

They are commonly used in larger-scale or commercial calorifier systems where high heating capacity, energy efficiency, and integration with central heating systems are important considerations.

Heat exchangers may require additional components such as pumps, control valves, and temperature sensors to regulate the flow rate and temperature of the heating medium and ensure optimal performance.

4 Gauges – Temp. Pressure/Level

In a calorifier tank, various types of gauges are often installed to monitor important parameters such as temperature, pressure, and fluid level. Here's a breakdown of each type of gauge commonly found in calorifier tanks:



Temperature Gauges:

- Temperature gauges are used to measure the temperature of the water or fluid within the calorifier tank.
- These gauges typically consist of a temperature sensor (such as a thermocouple or resistance temperature detector) connected to a display or dial that indicates the temperature in degrees Celsius or Fahrenheit.

Pressure Gauges:

- Pressure gauges are used to measure the pressure of the water or fluid within the calorifier tank.
- These gauges typically consist of a pressure sensor (such as a bourdon tube or diaphragm) connected to a display or dial that indicates the pressure in units such as psi (pounds per square inch) or bar.

LevelGauges:

- Level gauges are used to monitor the fluid level inside the calorifier tank.
- These gauges come in various types, including sight glasses, magnetic level indicators, and float-operated level switches.

5 Safety valves & Vent

Safety valves and vents are crucial components in a calorifier tank system, responsible for managing pressure and preventing over pressure situations.

| 6 Control equipment, Sensors & Panel

Step Controller

For high power range applications duct heaters are available with electronic step controller if required. They are used to stage multiple steps of electric or pneumatic control. Switching multiple stages with step controller ensures that the room set point should not take stress as load requirement changes.

SCR Controller

Heabird also provides duct heaters along with SCR controls. One hundred percent solid state proportionating control is noiseless and does not have any mechanical device. SCR controlled duct heaters can be able to provide very fine and precise temperature environment which can be having highest reliability. Modulation from 0 to 100% can be achieved by time based proportional firing which can be varied in response to the various thermostat demands.

Voltage/Phase	Maximum (kW)
120/1	9
208/1	18
240/1	24
480/1	18
208/3	45
240/3	55
480/3	60

Panel Options



Insulated Control Panel:

Insulation is recommended between control panel and heaters for higher temperatures.

Insulation material will be installed between panel and hot surface area to prevent condensation on electrical components.

Bottom Control Panel:

Bottom control panel can be supplied when required for easy installation and maintenance.



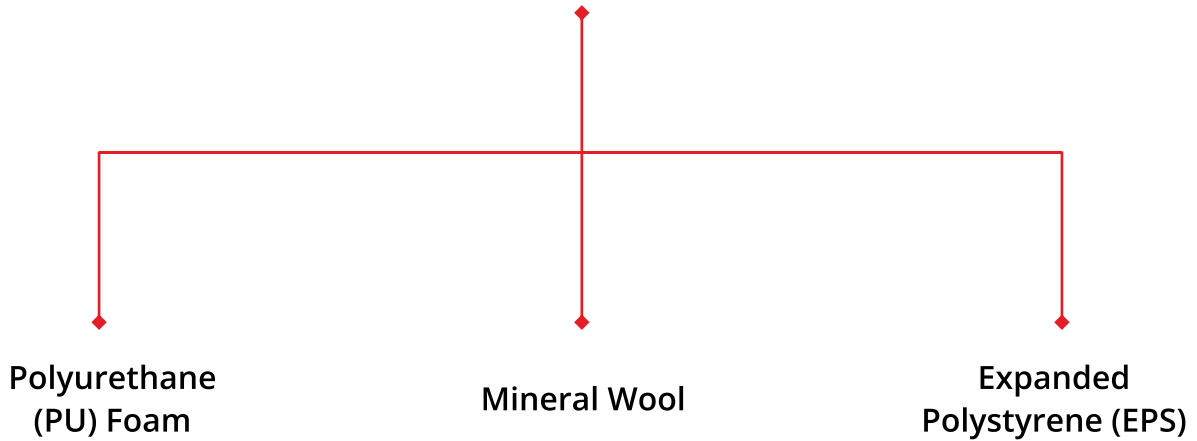
Remote Control Panel:

In some case it is advisable to install panel remotely from heating elements. It is also supplied as per requirement which enable to operate the heater from remote location like control room, etc.

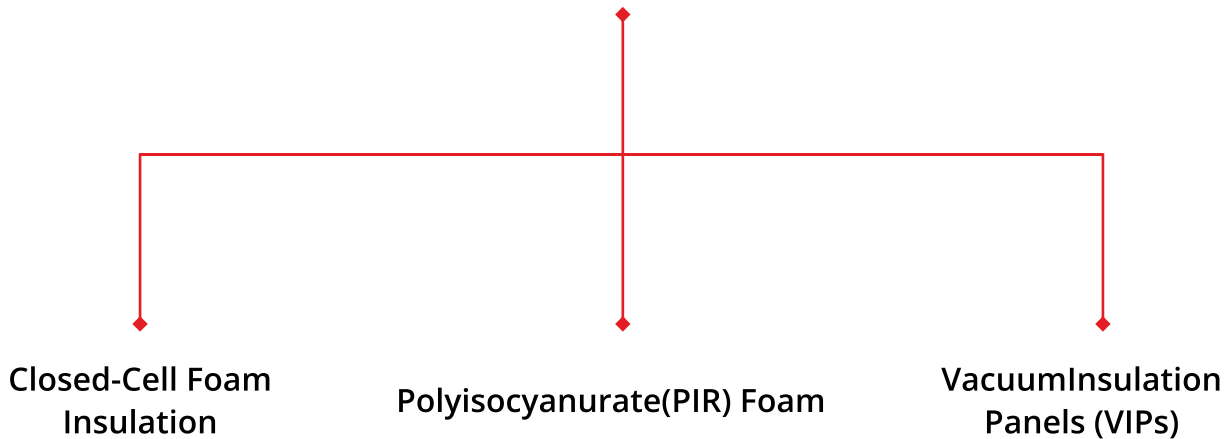
7 Insulation type – Hot/ Cold

The insulation used for calorifier tanks serves to minimize heat loss (in the case of hot water storage) or to prevent heat gain (in the case of cold water storage). The choice of insulation type depends on factors such as the desired thermal efficiency, operating temperature range, and environmental conditions. Here are common insulation types used for both hot and cold calorifier tanks:

A. Hot Water Calorifier Tank Insulation:



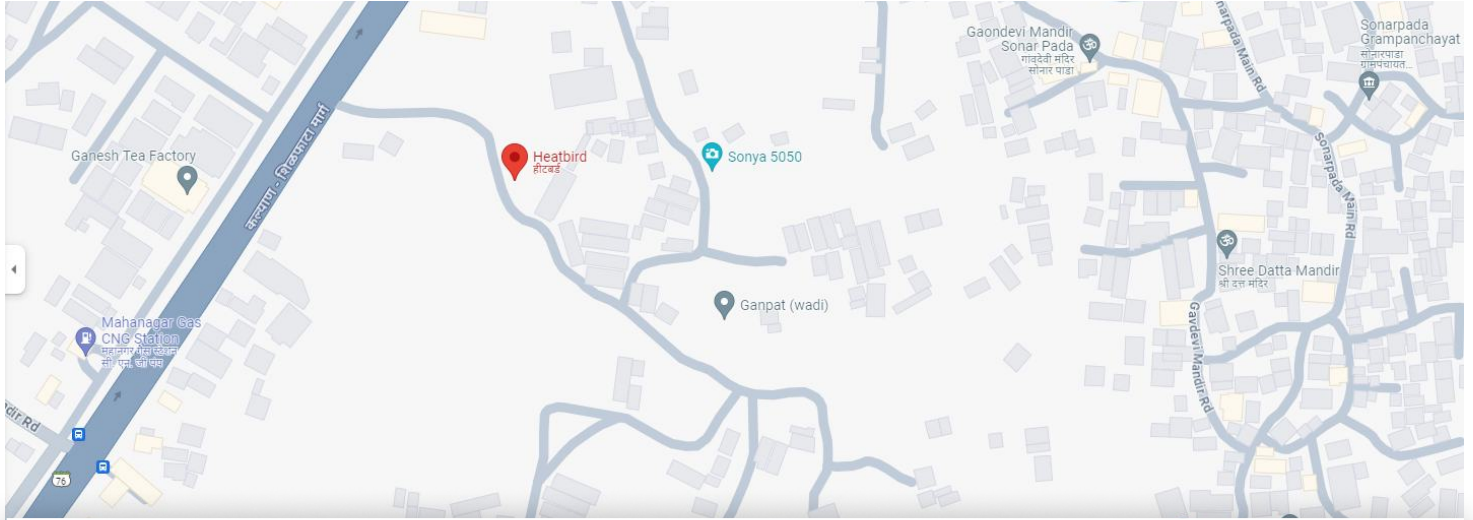
B. Cold Water Calorifier Tank Insulation



In addition to the insulation material, the thickness and installation method of insulation are important considerations for optimizing thermal performance and energy efficiency. Properly insulated calorifier tanks help reduce energy consumption, minimize temperature fluctuations, and ensure consistent hot or cold water supply, depending on the intended application. Regular inspection and maintenance of insulation are also essential to prevent degradation over time and maintain optimal performance.

Contact Us !!

HEATBIRD – MUMBAI,INDIA



+91 8849852843

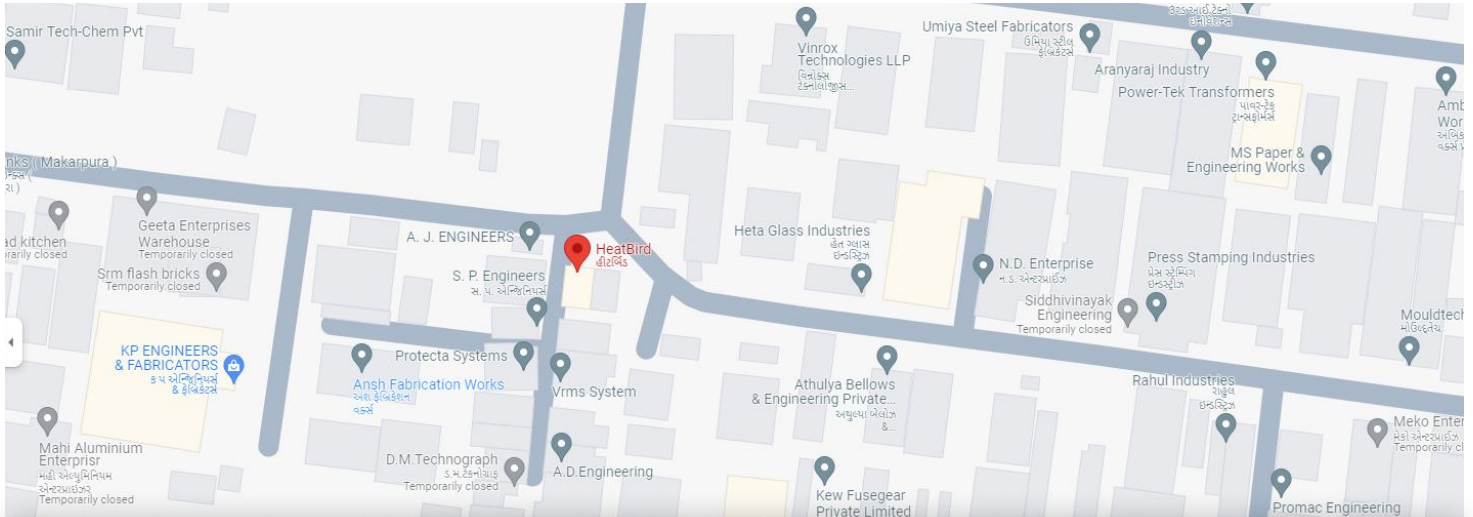


Shade No. 1, Keshav Patil Compound
Krushna Wadi, Kalyan - Shilphata Rd,
Dombivli (E), Maharashtra 421203.



sales@heatbird.com

HEATBIRD – VADODARA,INDIA



+91 6351 566 041



340-B/7, MakarpuraGIDC, Makarpura,
Vadodara, Gujarat 390010.



info@heatbird.com

2024

We Provide Innovative
Heating Solutions

Diagnosis

Design



Development

Deliver

